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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/509,777

09/29/2004

Jonathan Sidney Edelson

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02/07/2006

Borealis Technical Limited  
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EXAMINER

IP, SHIK LUEN PAUL

ART UNIT

PAPER NUMBER

2837

DATE MAILED: 02/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/509,777

Applicant(s)

EDELSON, JONATHAN SIDNEY

Examiner

Paul Ip

Art Unit

2837

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).  
Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 and 14-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 14-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 9/29/2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)                        |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____   |

## **DETAILED ACTION**

### ***Proposed Amendment filed on 2/2/2006***

1. The proposed amendment filed on 2/2/2006 has been considered. The proposed amendment has not been entered for the following reasons. Claim 1 fails provide any structure of the stator/rotor in order to support the sinc function as recited in the claim. Claim 1 should incorporate with the cyclic sinc equation and its relationship with the motor structure. The proposed equations as recited in claims 1 and 7 are different from the equations as recited in the specification. Any correction or change of the equations in the claims should have a clear support from the specification. Therefore, correction of the specification is required with an explanation of the such correction in the response. Applicant is reminded that no new matters should be introduced into the specification.

### ***Priority***

2. An application in which the benefits of an earlier application are desired must contain a specific reference to the prior application(s) in the first sentence(s) of the specification or in an application data sheet by identifying the prior application by application number (37 CFR 1.78(a)(2) and (a)(5)). If the prior application is a non-provisional application, the specific reference must also include the relationship (i.e., continuation, divisional, or continuation-in-part) between the applications except when the reference is to a prior application of a CPA assigned the same application number.

Applicant should add the PCT information at the beginning of the specification.

***Specification***

3. The disclosure is objected to because of the following informalities: application number 09/713,654, filed November 15, 2000, now patent number 6,657,334 should be provided in the specification. Appropriate correction is required.

4. The disclosure is objected to under 37 CFR 1.71, as being so incomprehensible as to preclude a reasonable search of the prior art by the examiner. The specification discloses three phase machines design with the idealized winding sinusoidal distribution or cyclic sinc winding distribution with a cutoff at certain harmonic with respect to the turns of the windings or slots. The specification also discloses the desired reconstruction filter thus be a low pass filter in order to determine the cyclic sinc winding distribution. The specification fails to define any structure or low pass filter circuit or any physical three phase motor structure as a result of the cyclic sinc winding distribution function. The specification fails to define any multiple phase motor structure other than a multiple phase electrical machine is being used with a low pass reconstruction filter to determine the winding distribution at different harmonics with different cutoff frequencies. For examples, pages 12 and 13 present different embodiments with different phases electrical rotating machines and the electrical rotating machines are connected with different mesh connection to inverter drives or inverter logic circuits without any specific structure or circuit provided or shown in the drawings of the invention. The specification also fails to clearly define different embodiments of the structure or method considered as the invention. The specification fails to clearly define

whether the winding distribution forms a low pass filter to produce the cutoff harmonic, or a low pass filter circuit is connected to the winding distribution to cutoff harmonic according to the sinc function. Furthermore, there is no electrical circuit of any form recited in the specification in order to generate sinusoidal function or sinc function as disclosed in the specification. The specification is presented in such as way as a test report for a three phase induction motor at different harmonics with different winding distributions at the used sinc function. The specification fails to define any circuit or structure of the invention according to the sinc function.

Applicant is required to submit an amendment that clarifies the disclosure so that the examiner may make a proper comparison of the invention with the prior art.

Applicant should be careful not to introduce any new matter into the disclosure (i.e., matter which is not supported by the disclosure as originally filed).

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-12 and 14-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-12 and 14-22 are functional, vague, and indefinite. For example, claim 1 recites a rotating induction machine comprising more than three different phases of electrical current fed to stator windings, wherein said stator windings arranged with a winding distribution according to the sinc function. Claim 1 fails to provide any

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limitations to define the rotating induction machine. Claim 1 further fails to provide any limitations to define a device or a circuit or a means for feeding three different phases of electrical current to the stator windings. Furthermore, claim 1 fails to define a winding distribution according to the sinc function, and the definition or equation of the sinc function considered as the invention.

Claims 1-12 and 14-22 recite different phases and different cutoff frequencies for the sinc function without the recitation of any means or device or circuit for providing different phases and different cutoff frequencies for the sinc function cause the claims confusing, vague, and indefinite.

Since there is no definite structure or electrical circuit recited in the specification to support the claimed invention, applicant should rewrite the claims in method claims in terms of the definition of the sinc function with the winding distribution in order to operate the three phase machine with the cutoff harmonics.

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claims 1-12 and 14-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Auinger (4,751,448) in view of Woodson et al (5,189,357) or Hsu et al (5,019,766).

So far as the claims are understood, the patent to Auinger shows in figures 1-24 different motor winding configurations similar to the structure of the invention. Whereas, the claims recite the winding distribution according to the sinc function. However, the patents to Woodson et al and Hsu et al disclose induction machines with winding distributions (fundamental winding, third harmonic winding, fifth harmonic winding) operate at different harmonic frequencies. Since applicant discloses on page 8 line 12 to page 9 line 10 that the sinc function used for three phase machine with the winding distribution is well known in the art, it would have been obvious that the motor winding configurations of Auinger can be operated with the well known sinc function at the cutoff harmonics as taught or suggested by Woodson et al or Hsu et al.

#### ***Response to Amendment***

10. Applicant's arguments filed 11/22/2005 have been fully considered but they are not persuasive.

Applicant has to amend the specification to include the PCT application information at the beginning of the specification.

Applicant's argument for the International Search Report is irrelevant because the PCT and the US application have different legal standards, laws, and requirements. Claim 1 for example fails to provide any structure or formula with the corresponding structure as required under 35 U.S.C. 112, second paragraph. The only limitation of the sinc function fails to particularly define the invention which causes the claim confusing, vague, and indefinite. Applicant should amend the claims including with the corresponding structure and the sinc function in order to overcome the rejection. So far the claims are understood, the claims fail to overcome the 35 U.S.C. 103 rejection.

#### ***Citation of Pertinent References***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The patents to Hsu et al (5,019,766), Woodson et al (5,189,357), Woodson et al (5,053,689), Curtiss (4,445,080), Harbaugh et al (2005/0057212), Satoh et al (6,078,119), and Nakano et al (6,876,116 or 6,853,105 or 2003/0048017) disclose motor structure for sin functions. It is inherent that the frequency of the sin function has a cut off frequency at certain points of the operation.

#### ***Communication Information***

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul Ip whose telephone number is (571)-272-1941. The examiner can normally be reached on Monday to Friday from 6:30 am to 3:00 pm.



If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paula Bradley, can be reached on (571)-272-2833. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Paul Ip  
Primary Examiner  
Art Unit 2837

02/02/2006